NASA Glenn
Plum Brook Station

SECOND EDITION
JANUARY 2002

# Decommissioning NEWS
## Plum Brook Station

A quarterly newsletter to inform the public about NASA's Decommissioning Activities

## Something for Everyone at the COMMUNITY INFORMATION SESSION

Some people were drawn to one corner of the cafeteria where a video about decommissioning ran continuously throughout the evening. Other people meandered through exhibits, leisurely looking at the many photographs and reading about the progress being made in preparation for decommissioning the closed Reactor Facility. A group of retirees could also be seen telling stories to a young Decommissioning Team member. Still others enjoyed refreshments and chatted with old friends as they waited for the slide presentation to begin. Most everyone, at some time during the evening, picked up fact sheets, the first edition of the Decommissioning Newsletter, or an extra refrigerator magnet to take home with them.

On Tuesday, October 23, 2001 from 7 to 9 p.m., NASA hosted its third annual Community Information Session. Thanks to Perkins High School Principal Chris Gasteier, the Community Information Session was held in the school's cafeteria, which provided ample space for community members to enjoy the evening's program in a relaxed atmosphere.

Said Sally Harrington, of NASA's Community and Media Relations Office, "Even though we keep an open dialogue with the community throughout the year, we think it's very important to hold an annual Community Information Session, where community members can come and talk directly with our Decommissioning Team about any aspect of the project." About 35 community members - from high school students to NASA retirees - attended the session. In addition, four members of the Decommissioning Community Workgroup were there to share their views and experiences following their ninth quarterly meeting, held prior to the start of the Community Information Session. "This event was well advertised, and I was glad to see some neighbors here," said John Blakeman, a retired Perkins High science teacher and Community Workgroup member. "NASA had all the experts here, as always. I especially liked the displays. They were very informative and well done."

At the heart of the session was the series of displays (photos and text) where folks could get information on what they were most interested in. Some people gravitated to the display about other decommissioning projects going on around the country. Others were questioning John Heggie, Health and Safety Manager for Montgomery Watson Harza (one of NASA's contractors) about measures being taken to protect workers. Many people talked with Keith Peecook, NASA Senior Project Engineer, about the progress being made on pre-decommissioning. While NASA hosted the evening for the benefit of the community, NASA team members learned a lot from those who came. "We had some tremendous discussions that evening," said Tim Polich, NASA Decommissioning Project Manager. "Some people came in the door with questions, and others wanted to know more about something they had just read about or seen

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**PHOTOS**: from left to right; NASA's Tim Polich talks with a visitor to the Information Session, John Heggie of Montgomery Watson Harza and Perkins High School Principal Chris Gasteier; NASA's Sally Harrington talks with an attendee; People viewing slide presentation on project; and Hank Bayes, a NASA team member from Argonne National Labs at display with Workgroup member Rick Graham.

## WHAT'S INSIDE

## Other ways to receive Decommissioning INFORMATION

**FACT SHEETS**
Since June 1999, NASA has produced six fact sheets dealing with various aspects of plans for Decommissioning. Copies are available at public libraries throughout Erie County, at the Community Information Bank at the BGSU Firelands Library, on our Decommissioning Website at www.grc.nasa.gov/www/pbrf and by calling our Information Line at 1-800-260-3838.

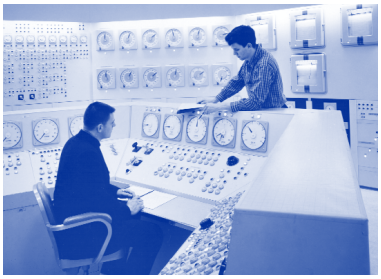
**COMMUNITY INFORMATION BANK**
NASA has established a Community Information Bank (CIB) at the BGSU Firelands Library. The CIB serves as a permanent repository of information on the Decommissioning Project. NASA continually updates the information in the CIB, which includes fact sheets, Public Service Announcements about NASA events, copies of NASA's Decommissioning Plan and Decommissioning Community Relations Plan, minutes from Community Workgroup meetings, and copies of other decommissioning-related documents and reports. All information at the CIB is available to the public upon request.

**DECOMMISSIONING WEBSITE**
Decommissioning information is available on-line. Visit us at www.grc.nasa.gov/www/pbrf

**SPEAKERS**
NASA will provide speakers upon request to civic, community and school organizations throughout Decommissioning. A video or slide presentation may be presented. For further information, contact Sally Harrington through our Information Line at 1-800-260-3838, her direct line at 216-433-2037, or at s.harrington@grc.nasa.gov.

## DOCUMENTING REACTOR FACILITY HISTORY - PRIDE & PRESERVATION

While NASA will spend the next several years taking apart the Reactor Facility, it will also document an extensive history of the facility, which operated at Plum Brook Station from 1961 to 1973. According to Mike Blotzer, Chief of Environmental Management at NASA Glenn Research Center who oversees the Reactor Facility Historic Preservation effort, "The reactor was designed to support research for nuclear propulsion systems. It was involved in some very unique research. This facility has great historical value to NASA as an agency."



NASA is taking a number of steps to document the reactor's unique history. In January 2001, NASA conducted an Artifact Identification and Assessment and published its report last April. It includes a historical overview of the Reactor Facility and the experiments that NASA conducted there. The Assessment recommended the preservation of several items in the facility, including a large-scale model of the facility that is presently on display in the Plum Brook Station cafeteria and several control panels in the Control Room of the Reactor Facility.

Blotzer explains that in addition to examining the "technical aspects" of the facility and "what research was done there and how that research helped the space program," NASA also decided to examine the "social significance" of the facility, dealing with questions such as "How did people interact with each other? How did people react when they learned the reactor was closing?" According to Blotzer, one social aspect of the facility's history was a chalkboard on which the letters RIF (Reduction in Force) were written after it was announced in January 1973 that the reactor would be closing - and he notes that "nobody's ever erased that chalkboard."

Kevin Coleman, the NASA Glenn History Officer and Records Manager involved in documenting the reactor's history, says "This was a one-of-a-kind facility" adding that there are 250 boxes of records and photographs at Plum Brook that document the facility's history. They will be the basis for scholarly research and a manuscript to be written by Dr. Virginia Dawson and Dr. Mark Bowles, of History Enterprises, Inc., noted historians who are currently working on a book on the history of NASA's Centaur rocket program. In addition, they will be involved in NASA's outreach efforts to area schools, targeting principals as well as science and history teachers to get their feedback on the Reactor Historic Preservation efforts.

The Reactor Facility's Historic Preservation efforts will also benefit from the artistic and technological skills of NASA Glenn's Imaging Technology Center. Video specialist Jim Polaczynski, employed by NASA contractor Indyne, Inc., is producing and directing a one-hour video documentary of the project and will eventually produce an interactive DVD. In putting together the video, Polaczynski taped several Plum Brook Station retirees who still meet monthly for breakfast.

This initial taping led to a group of eight retirees revisiting the Reactor Facility last September. According to Coleman, "We had them stand where they used to work," some by the manipulator arm outside the Hot Cells area (where experiments were conducted) and some in the Control Room of the facility. "We got them talking about what they did," he recalls, adding, "listening to the retirees was an education in itself," while noting the pride and affection they took in recalling their work. They will be interviewed individually by Polaczynski, and then again by Dr's. Dawson and Bowles. The retirees also helped identify many of the photographs in the facility archives.

Coleman says the video will also address the history of the land at Plum Brook Station; from its days as farmland to its acquisition by the US Army for use as an Ordnance Facility and TNT factory during World War II, to the development of Plum Brook Station and construction and operation of the Reactor Facility. He notes that many local farm families had their land taken by the Army for the construction of the Ordnance Facility and feels the history of the land will have the most significance to the community.

Polaczynski believes the video documentary is important, given the work that was done at the Reactor Facility. Like Coleman, he was impressed by the retirees, and views them as the focal point of the story. "I was so thankful we had these retirees to speak about their passion for doing things the right way," says the video director. "Even though they had strong feelings about the reactor's closing, what drove them at the end was to shut the thing down in the safest manner possible."

Coming from a background in feature films, Polaczynski believes the documentary could eventually be aired on the History Channel or a similar educational cable network. He says that while the video documentary is on the horizon, the DVD project may be a few years away, since it is likely to include actual footage of the Reactor Facility decommissioning work.

Coleman regrets that one feature that will not be incorporated into the video was a planned reunion of more than 200 NASA Plum Brook retirees that was to take place at Plum Brook Station last September 20. The reunion was postponed due to security concerns after the terrorist attacks. According to Jack Crooks, who worked at Plum Brook Station from 1957 to 1973, and played a leading role in closing down the Reactor Facility, "Since 1991 we've tried to have one every five years or so." There were 250 people in attendance in 1991 and about 230 in 1996. Crooks says the work he

**PHOTOS: Top** - The Plum Brook Station Reactor Facility operated from 1961 to 1973; **Middle** - Overlooking the quadrants area of the Reactor Facility in this 1960's era photo; **Bottom** - Staff shown working in the Reactor Control Room when the facility was operational.

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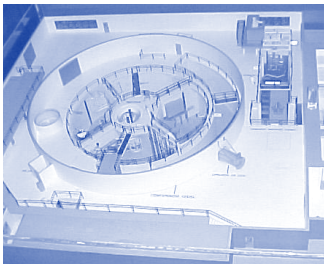
**Do you want some news? Do you have questions or comments on decommissioning?**
**CALL OUR INFORMATION LINE AT 1-800-260-3838.**

# PRE-DECOMMISSIONING & ATTENTION TO DETAIL

Eric Bertrand is a member of the pre-decommissioning work crew, but at times he might feel a bit like a detective. Eric, along with half a dozen other trained workers, spent last fall exploring places, verifying information, and documenting every detail. This experience will serve them well as they will become team leaders of larger work crews during decommissioning.

In October and November of last year, NASA's work crew conducted an inventory and surveyed the contents of the quadrants and canals that surround the reactor vessel. (See photograph to right) The four pie-shaped quadrants are roughly 25 feet deep by 20 feet wide by 40 feet long. When the Reactor Facility was in operation, three of these quadrants were filled with water, which served to shield workers and the environment from the radiation contained in the reactor vessel core. A thicker wall of concrete shielded the fourth quadrant. According to Steven Rupp, Senior Health Physicist, water is one of the most effective barriers to radiation. While the quadrants and canals are now dry, the water line can still be seen high on the concrete wall where some life vests still hang as vestiges of NASA's longstanding history of concern for worker safety.



Entering this area of the closed Reactor Facility was not a simple matter. After gaining initial entry into the quadrants, workers had to construct scaffolding with stairs in three of the four quadrants, (one quadrant already had stairs). "Stairs are much easier and safer than using ladders to access the work area 25 feet below," said Keith Peecook, NASA Senior Project Engineer. (See photograph to right). With the scaffolding in place, the crew surveyed the areas and took inventory of all the loose equipment, and to the extent possible, the fixed equipment that remained there since the Reactor Facility closed in 1973. The survey was done to confirm the radiation levels previously documented. The inventory includes a physical description of all of the equipment, including what material the equipment was made of, its size and weight. This pre-decommissioning work is part of NASA's efforts to meet the strict packaging, transportation and disposal requirements for low-level radioactive waste (LLRW). The U.S. Nuclear Regulatory Commission (NRC) and the U.S. Department of Transportation (DOT) regulate the packaging and transportation of LLRW. In addition, licensed waste reprocessing facilities and disposal sites have strict requirements governing the waste they can and cannot accept. "To know how to safely package and ship radioactive material, you must know exactly what it is you are dealing with," said Keith Peecook. This is accomplished through a series of sampling procedures that are known as a Part 61 Characterization. Within the quadrants and canals, workers used hand-held Geiger counters to take direct radiation readings on each piece of equipment. In addition, workers took swipes of loose contamination (think of it as dust on the surface of the item). These swipe samples were sent to an offsite laboratory to determine what specific radioactive isotopes were present and how much energy was coming from them. With both data sets, NASA is able to determine the appropriate packaging for safely shipping the waste.

In addition to the Part 61 Characterization, NASA is conducting an Activation Analysis on material located close enough to the core to have become activated through normal operation of the reactor. This includes a portion of the reactor vessel and the reactor internals. An Activation Analysis looks at the metals that make up the components and, based on how irradiated they got when the Reactor Facility was in operation, tells what the expected composition of the material is today. (See sidebar on page 4) This fixed equipment and part of the physical structure of the reactor will eventually be taken apart and safely shipped for disposal once actual decommissioning begins early next spring.

There are two methods that experts can use to perform an Activation Analysis. The first is taking actual samples of the vessel and the internals. The second is doing a computer modeling analysis. NASA intends to limit taking physical samples for the Activation Analysis to protect worker safety.

NASA will use the inventory and survey results gathered during pre-decommissioning plus historical data to conduct the "hands-off" computer-generated Activation Analysis. NASA's historical records provide information on the kinds of materials that were used to construct the reactor vessel and internals. Records also exist on that material's proximity to the reactor core. The Reactor Facility's operating logs provide the "flux" profile. Flux is the density of neutrons that were given off by the reactor during operation (i.e., how much power was used and for how long).

**PHOTOS: Top** - Model of reactor quadrants and canals; **Bottom** - Workers constructing scaffolding and stairway.

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# COMMUNITY WORKGROUP PROFILE

## Janet & Mark Bohne

That they have shared membership in a variety of community and environmental initiatives is not surprising, given that they have shared a life for 24 years. Milan residents Janet and Mark Bohne have been members of the Decommissioning Community Workgroup since its inception in 1999. They are also members of the Restoration Advisory Board for the former Ordnance Facility that once operated at what is now Plum Brook Station (PBS).

Janet and Mark agree that the purpose of the Workgroup is to keep the community informed about the project. Janet, a medical researcher currently working on a sub-atomic particle project, sees her Workgroup role as "understanding what is taking place from a medical point of view and assuring the public that (Decommissioning) is safe." Mark, an engineer with Bechtel McLaughlin, also sees the Workgroup as "reassuring the public" about nuclear safety on the Decommissioning Project.

Both frequently get questions from community members, with Mark noting, "Once people know you're involved, that you've been out there (to PBS), they tend to ask questions." Janet's questions tend to come from parents who are "concerned about what they think is radioactive waste on the highways, during hours when their children are outside or traveling to or from school." Just after the terrorist attacks, and in the week before October's Community Information Session, (see story on page one) Janet says she received up to "six to eight calls or E-mails a day," mostly regarding the transportation of radioactive materials and the truck route. (Note: There have been no shipments from Plum Brook Station since the initial pre-decommissioning shipment on August 8). Janet says that reassuring questioners has been something she can do with confidence. "As a health professional," she observes, "I feel very confident that all safety precautions are being taken - and we live close to the facility." She also believes NASA will be able to safely decommission the Reactor Facility. Mark also emphasizes his confidence in NASA's commitment to worker safety, noting that, he is "satisfied with the project management and the subcontractors. Every aspect of safety is stressed with training, training and more training."

The Bohnes speak positively about NASA's efforts to communicate information about the Decommissioning Project to the community at large, citing the 24-hour, toll-free Information Line (1-800-260-3838) and the accessibility of Decommissioning Team members. According to Janet, "Even if people don't call the line, they are reassured by the fact that it is there and available to everyone." Her own positive experience with the

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**VISIT US ON-LINE**
You can find our Decommissioning Website at www.grc.nasa.gov/www/pbrf

## Topics in Upcoming Issue

NRC approves Decommissioning Plan
Project Update
Results of "Name the Newsletter" Contest

*Community Information (continued from page 1)*

during the evening. Either way, we made sure they got to talk to as many people and for as long as they wanted."

One attendee at the session noted, "I've been here (in Erie County) for 77 years and I've always felt safe. People have benefited from nuclear research in medical and other areas. (Plum Brook Station) has been part of my life - a lot of good things have come out of it." Conversations continued until after 9:00 that night. Said one of the last to leave, "I appreciated the personal attention I got. They really answered my questions."■

*History-Pride & Preservation (continued from page 2)*

and his colleagues performed at the Reactor Facility involved "advancing the state of the art - studying radiation effects and conducting fuel studies." He points out that many of the safety standards employed at nuclear power plants today were employed at Plum Brook Station. He also remembers the "close camaraderie" among the reactor crew. Even when it was announced that the reactor was closing, he recalls the pride he and his colleagues took in having "the unique opportunity to put the facility in mothballs and ship out all the fuel." At that difficult time, when their futures were up in the air, Crooks notes, "you might think that people would not focus on getting the job done, but there was a lot of professionalism and cooperation...to get the shutdown tasks done on time."

In thinking about the legacy of the Reactor Facility that he hopes to capture, director Polaczynski says he hopes to "show the sense of responsibility (NASA) has now and had then; how you keep going on, guided by a sense of purpose - keeping science safe." It is a legacy that started when the Reactor Facility was built and will continue long after it is decommissioned. And it is a story that will soon be told.■

*Janet & Mark Bohne (continued from page 3)*

Decommissioning Team was evidenced by an inquiry she E-mailed to NASA after the events of September 11, noting, "I got an answer back in ten minutes. We've received wonderful cooperation." Mark echoes that, "NASA has done a phenomenal job of keeping people informed."

As the project goes on, Mark believes there will be more calls to the Information Line. However, he emphasizes that an increase in calls is not a negative, explaining "As Workgroup members and environmentalists, we believe this is a model project for keeping the community involved...If people have questions, we'll be glad to talk with them."

If you have questions for Janet or Mark Bohne, please feel free to E-mail Janet at jbohne@lrbcg.com or Mark at hilltop@lrbcg.com.■

*Attention to Detail (continued from page 3)*

With this data, computer analyses can estimate the amount and type of nuclide that would be present if the material had been exposed to full power for the duration of the facility's operation. Modeling this information tends to predict higher amounts of radioactivity than may actually be present; but by using a conservative estimate, NASA can ensure that the waste will be well within the limits that the shipper and waste disposal company are prepared to accept.■

When metals are exposed to radiation, their composition can change. For example, when a stable atom like Cobalt 59 is exposed to radiation, it can pick up additional neutrons and become a totally different isotope (Cobalt 60) that is radioactively unstable. This overall effect is called activation. Computer models can be used to predict how a metal (like stainless steel) will change its composition of isotopes when exposed to a given amount of radiation. For the Reactor Facility, a very sophisticated computer model is used to analyze the reactor core, since it is made up of many different materials that saw varying amounts of radiation.

NASA Glenn
**Plum Brook Station**
6100 Columbus Avenue
Sandusky, Ohio 44870

**Community Workgroup Meeting**
**TUESDAY, JANUARY 15, 7 PM**
Saint Stephen's AME Church
312 Neil Street - Sandusky
(off Columbus Ave.
near downtown Sandusky)